

Amendments to the Claims

A complete list of pending claims follows, with indicated amendments:

1. (Currently Amended) A method of failover in a cluster having [[one]]two or more cluster nodes, comprising:

providing a third server operative with said two or more cluster nodes, wherein said third server is not a cluster node and wherein each cluster node comprises a server;

detecting a failed process on one of said cluster nodes; and

duplicating said process on a virtual node on said third server;

wherein said process is resumed on said virtual node.

2. (Currently Amended) The method of claim 1, wherein said third server is a failover server.

3. (Currently Amended) The method of claim 1, wherein said third server is a backup server.

4. (Currently Amended) A system comprising:

a cluster, said cluster composed of [[one]]two or more cluster nodes, wherein each of said cluster nodes comprises a server constructed and arranged to execute at least one process; and

a third server, said third server operative with said cluster, said third server having one or more virtual nodes, each of said virtual nodes being constructed and arranged to execute said process of said [[one]]two or more cluster nodes, wherein said third server is not a cluster node;

wherein if one or more of said cluster nodes fails, then said process of said failed cluster node is transferred to one of said virtual nodes of said third server.

5. (Currently Amended) The system of claim 4, wherein said third server is a failover server.

6. (Currently Amended) The system of claim 4, wherein said third server is a backup server.

7. (Currently Amended) The system of claim 4 further comprising an additional server, said additional server operative with said third server, said additional server having one or more virtual nodes, each of said virtual nodes being constructed and arranged to execute the instructions of one or more virtual nodes of said third server, wherein said additional server is not a cluster node.

8. (Currently Amended) The system of claim 7, wherein said third server is a failover server and said additional server is a backup server.

9. (Currently Amended) A system comprising:
a cluster, said cluster composed of [[one]]two or more cluster nodes, wherein each of said cluster nodes comprises a server constructed and arranged to execute one or more processes;

a distributed cluster manager operative with each of said cluster nodes, said distributed cluster manager constructed and arranged to detect failure of said one or more processes on said [[one]]two or more cluster nodes; and

a third server, said third server operative with said distributed cluster manager, said third server having a dynamic virtual failover layer operative with said distributed cluster manager, said third server further having one or more virtual nodes operative with said dynamic virtual failover layer, each of said virtual nodes being constructed and arranged to execute said one or more processes of said ~~[[one]]two~~ or more cluster nodes, wherein said third server is not a cluster node;

wherein if one or more of said cluster nodes fails, then said one or more processes of said failed cluster node are transferred to one of said virtual nodes of said third server.

10. (Currently Amended) The system of claim 9 further comprising:

an additional server, said additional server operative with said distributed cluster manager, said additional server having a dynamic virtual failover layer operative with said distributed cluster manager, said additional server further having one or more virtual nodes operative with said dynamic virtual failover layer of said additional server, each of said virtual nodes of said additional server being constructed and arranged to execute said one or more processes of said ~~[[one]]two~~ or more cluster nodes, wherein said additional server is not a cluster node.

11. (Currently Amended) The system of claim 9, wherein said third server is a failover server.

12. (Currently Amended) The system of claim 10, wherein said third server is a failover server.

13. (Previously Amended) The system of claim 10, wherein said additional server is a backup server.

14. (Currently Amended) An apparatus composed of [[one]]two or more cluster nodes having at least one computer, said computer having at least one microprocessor and memory capable of executing one or more processes, said apparatus further comprising:

two or more cluster nodes, each cluster node comprising a server;

a third server, said third server operative with said two or more cluster nodes, said third server having one or more virtual nodes, each of said virtual nodes being constructed and arranged to execute said process of said [[one]]two or more cluster nodes, wherein said third server is not a cluster node;

wherein if one or more of said cluster nodes fails, then said process of said failed cluster node is transferred to one of said virtual nodes of said third server.

15. (Currently Amended) The apparatus of claim 14, wherein said third server is a failover server.

16. (Currently Amended) The apparatus of claim 14, wherein said third server is a backup server.

17. (Currently Amended) The apparatus of claim 14 further comprising an additional server, said additional server operative with said third server, said additional server having one or more virtual nodes, each of said virtual nodes being constructed and arranged to execute the instructions of one or more virtual nodes of said third ~~second~~-server, wherein said additional server is not a cluster node.

18. (Currently Amended) The apparatus of claim 17, wherein said third server is a failover server and said additional server is a backup server.

19. (Currently Amended) An apparatus having a cluster, said cluster composed of two or more cluster nodes, each of said cluster nodes having one or more microprocessors and memory, said nodes constructed and arranged to execute one or more processes, said apparatus further comprising:

two or more cluster nodes, each cluster node comprising a server;

a distributed cluster manager operative with each of said cluster nodes, said distributed cluster manager constructed and arranged to detect failure of said one or more processes on said two or more cluster nodes; and

a third server, said third server operative with said distributed cluster manager, said third server having a dynamic virtual failover layer operative with said distributed cluster manager, said third server further having one or more virtual nodes operative with said dynamic virtual failover layer, each of said virtual nodes being constructed and arranged to execute said one or more processes of said two or more cluster nodes, wherein said third server is not a cluster node;

wherein if one or more of said cluster nodes fails, then said one or more processes of said failed cluster node are transferred to one of said virtual nodes of said third server.

20. (Currently Amended) The apparatus of claim 19 further comprising:

an additional server, said additional server operative with said distributed cluster manager, said additional server having a dynamic virtual failover layer operative with said distributed cluster manager, said additional server further having one or more virtual nodes

operative with said dynamic virtual failover layer of said additional server, each of said virtual nodes of said additional server being constructed and arranged to execute said one or more processes of said ~~one~~two or more cluster nodes, wherein said additional server is not a cluster node.

21. (Currently Amended) The apparatus of claim 19, wherein said third server is a failover server.

22. (Currently Amended) The apparatus of claim 20, wherein said third server is a failover server.

23. (Previously Amended) The apparatus of claim 20, wherein said additional server is a backup server.